

Having thus described the preferred embodiment, the invention is now claimed to be:

1. A personal recording and playback system (10) comprising:

a receiving means (19, 21) for receiving streaming audio/visual input from at least one of:

broadcast radio,
broadcast TV stations,
cable TV systems,
satellite TV systems,
the Internet, and
other wide-area networks;

a means (21) for connecting to wide area networks including the Internet and receiving streaming audio or audio/visual input;

a storage means (36) for storing the received streaming audio or audio/visual input;

a user input means (12) for inputting user commands to the recording/playback system (10);

a user output means (14) for outputting the audio or audio/visual input; and,

a recording means (32) for transparently:

tracking audio or audio/visual preferences of a user of the system (10);

maintaining a user profile database (34) for storing and maintaining user preferences;

receiving multiple audio or audio/visual streams via the receiving means (19, 21) and storing the received multiple audio or audio/visual streams on the storage means (36) in the background; and,

maintaining an audio or audio/visual recording collection (48,50) according to the user preferences by

analyzing the received audio/visual streams.

2. The system as set forth in claim 1, further including:

virtual channels (42) stored on the storage system (36), each virtual channel configured with a virtual channel profile defining the types of audio or audio/visual streams to be included in the virtual channel and, wherein the recording means further:

updates the virtual channels by selectively including received audio or audio/visual streams in each virtual channel which matches the virtual channel profile.

3. The system as set forth in claim 1, further including:

a most-popular list means (38) for storing the most often broadcasted audio/visual streams, and, the recording means further:

updates the most-popular list with the most often broadcasted audio or audio/visual streams.

4. The system as set forth in claim 1, further including:

a selection means (16) for playing audio or audio/visual streams selected by the user via the input device (12) on the user output device (14) from one of:

the receiving means (19, 21); and,
the audio/visual collection (48,50).

5. The system as set forth in claim 4, further including:

a fingerprint analysis means (58) for identifying

audio or audio/visual streams by matching a portion or portions of the stream to fingerprints stored in one of a local fingerprint database (60) and a remote fingerprint database (62).

6. The system as set forth in claim 4, further including:

a content analysis means (56) for examining an audio or audio/visual stream and identifying at least one of:
a profile of the stream,
voice-over sections of the stream,
degraded sections of the stream, and
commercial detection.

7. The system as set forth in claim 4, further including a video removal means (68) for removing a video portion from an audio/visual stream, leaving an audio portion.

8. The system as set forth in claim 4, further including:

a format-check means (30) for determining and decoding a format of an audio or audio/visual stream, the formats including:

MPEG2;
MPEG4;
MP3;
Ogg Vorbis;
DIVX;
Realplayer Real-Video;
Realplayer Real-Audio;
Microsoft Windows Media;
Microsoft Netshow;

Apple Quicktime;
Xing StreamWorks; and
analog.

9. The system as set forth in claim 8, further including:

a plug-in database means (64) for storing and retrieving plug-ins to enable the format check means (30) to determine and decode additional audio or audio/visual stream formats.

10. A personal recording and playback system (10) comprising:

a receiver (19,21) which receives streaming audio or audio/visual input from at least one of:

analog broadcast radio/TV stations;
cable TV systems;
satellite TV systems; and,
Internet servers;

a memory (36) in which the received streaming audio or audio/visual input is stored;

a user input/output (12,14) through which user commands and queries are input and audio or audio/visual streams and queries are output; and,

a processor (32) programmed to:

track audio or audio/visual preferences of a user of the system (10);

maintain a user profile database (34);

receive multiple audio or audio/visual streams in the background via the receiver (19,21) and store the received multiple audio or audio/visual streams in the memory (36); and,

maintain an audio or audio/visual recording

collection (48,50) in the memory according to the user preferences by analyzing the received audio/visual streams.

11. The system as set forth in claim 10, further including:

a selection processor (16) configured to select audio or audio/visual streams selected by the user to be played by the input/output (12,14), the audio or audio/visual streams being selected from one of:

the receiver (19,21); and,
the audio/visual collection (48,50).

12. The system as set forth in claim 11, further including:

a fingerprint analysis processor (58,60,62) programmed to identify audio or audio/visual streams by matching a portion or portions of the stream to fingerprints stored on a fingerprint database.

13. The system as set forth in claim 11, further including:

a content analysis processor (56) configured to examine the received audio or audio/visual streams and identify at least one of:

a profile of the stream;
voice-over sections of the stream; and
commercial detection.

14. The system as set forth in claim 11, further including:

a video removal processor (68) configured to subtract the video portion from the received audio/visual

streams and leave audio portions.

15. The system as set forth in claim 11, further including:

a format-check program (30) configured to determine and decode the format of the audio or audio/visual streams, the formats including:

MPEG2;
MPEG4;
MP3;
Ogg Vorbis;
DIVX;
Realplayer Real-Video;
Realplayer Real-Audio;
Microsoft Windows Media;
Microsoft Netshow;
Apple Quicktime;
Xing StreamWorks; and
analog.

16. The system as set forth in claim 15, further including:

a plug-in program (64) which stores and retrieves plug-ins to augment the format check program (30) to determine and decode additional audio or audio/visual stream formats.

17. A method for maintaining an audio/visual collection comprising:

receiving one or more audio or audio/visual streams in a background process transparent to a user;

storing the received audio or audio/visual streams for subsequent analysis;

monitoring the playback preferences of the user;
maintaining a user preference profile including the user playback preferences;

storing and maintaining the audio or audio/visual streams in a video/audio collection (48, 50);

analyzing and matching the recorded audio or audio/visual streams to the user preference profile, and, at least one of:

discarding the queued stream if unmatched to a user preference;

storing the queued stream in the audio or audio/video collection if matched to a user preference and not previously stored in the audio/video collection; or,

using the queued stream to selectively improve a matching, previously stored audio or audio/visual stream in the audio or audio/video collection; and,
playing the stored audio or audio/visual streams.

18. The method as set forth in claim 17, wherein the step of maintaining a user profile further includes:

maintaining one or more virtual channels, each virtual channel configured according to specific user preferences and including stored audio or audio/video collection streams matching the specific user preferences.

19. The method as set forth in claim 18, wherein the step of storing the queued stream includes:

selectively adding the stored stream to the virtual channels.

20. The method as set forth in claim 17, wherein the step of maintaining a user profile further includes:

maintaining a most-popular list including a configured number of stored audio or audio/video collection streams most often received.

21. The method as set forth in claim 17, further including at least one of:

identifying each of the audio or audio/visual streams by matching its fingerprint to a local fingerprint database entry;

identifying each of the audio or audio/visual streams by matching its fingerprint to a remote fingerprint database entry; and,

subtracting the video portion from an audio or audio/visual stream to produce an audio stream.